We claim:

1. An oxygen fired power generation system comprising:

a high pressure combustor having a water recycle temperature control subassembly, and

an intermediate pressure combustor having a CO_2 recycle temperature control subassembly.

2. The power generation system of claim 1 wherein said high pressure combustor produces drive gas for a high pressure turbine.

3. The power generation system of claim 1 wherein said intermediate pressure combustor produces a gas for an intermediate pressure turbine.

4. A method for generating power, wherein said method comprises:

mixing a gaseous fuel, oxygen and water in a high pressure combustor;

producing a high temperature drive gas consisting substantially of steam and CO_2 products;

expanding said steam and CO_2 products though a high pressure turbine to generate power and a gas-mixture discharge;

collecting said discharge from said high pressure turbine and collecting a recycled gas stream comprised substantially of CO_2 into an intermediate pressure combustor;

firing the intermediate pressure combustor with additional gaseous fuel and oxygen;

producing a drive gas that expands through a power-generating turbine which generates a gas discharge;

collecting said gas discharge from said turbine in a heat recovery system;

cooling said gas discharge to remove discharge water and creating a gas stream fraction consisting primarily of CO_2;

returning at least a portion of said discharge water to the high pressure combustor;

controlling the operating temperature of the high pressure combustor to maintain the operating temperature thereof within a predetermined high pressure combustor operating range;

compressing at least a portion of said gas stream fraction;

returning at least a portion of said compressed gas stream fraction to said intermediate pressure combustor; and

controlling the operating temperature of the intermediate pressure combustor to maintain the operating temperature thereof within a predetermined intermediate pressure combustor operating range.

5. The method of claim 4, wherein said heat recovery system comprises:

a recuperator, and

a heat exchanger.

6. The method of claim 5 wherein said recuperator heats said compressed gas stream fraction with said gas discharge.

7. The method of claim 5 wherein said heat exchanger preheats said water entering said high pressure combustor.

8. The method of claim 6 wherein said heat exchanger preheats said water entering said high pressure combustor.

9. The method of claim 8, wherein said predetermined high pressure combustor operating range is between 800 degrees and 2000 degrees Fahrenheit.

10. The method of claim 8, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

11. The method of claim 10, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

12. The method of claim 8, wherein said predetermined high pressure combustor operating range is between 900 degrees and 1500 degrees Fahrenheit.

13. The method of claim 8, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

14. The method of claim 13, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

15. The method of claim 8, wherein said predetermined high pressure combustor operating range is between 1000 degrees and 1200 degrees Fahrenheit.

16. The method of claim 8, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

17. The method of claim 16, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

18. A method for generating power, wherein said method comprises:

mixing a gaseous fuel, oxygen and water in a high pressure combustor;

producing a high temperature drive gas consisting substantially of steam and CO_2 products;

expanding said steam and CO_2 products though a high pressure steam turbine to generate steam power and a steam discharge;

collecting said steam discharge from said steam turbine and collecting a recycled gas stream comprised substantially of CO_2 into an intermediate pressure combustor;

firing the intermediate pressure combustor with additional gaseous fuel and oxygen;

producing a drive gas that passes through a heat exchanger wherein said heat exchanger heats a compressed nitrogen stream from an air separation unit and cools said drive gas;

expanding said cooled drive gas through a gas turbine which generates gas power and a gas discharge containing discharge water;

collecting said gas discharge from said gas turbine in a heat recovery system;

cooling said gas discharge to remove said discharge water and creating a gas stream fraction;

compressing said gas stream fraction;

returning at least a portion of said discharge water to the high pressure combustor;

controlling the operating temperature of the high pressure combustor to maintain the operating temperature thereof within a predetermined high pressure combustor operating range;

compressing said gas stream fraction;

returning at least a portion of said compressed gas stream fraction to said intermediate pressure combustor; and

controlling the operating temperature of the intermediate pressure combustor to maintain the operating temperature thereof within a predetermined intermediate pressure combustor operating range.

19. The method of claim 18, wherein said air separation unit comprises the steps of:

passing a high pressure nitrogen stream through a nitrogen compressor;

passing said compressed nitrogen gas stream through a heating system;

expanding said heated compressed nitrogen gas stream through a nitrogen turbine which generates nitrogen power and nitrogen gas discharge;

collecting said nitrogen gas discharge from said nitrogen turbine in a heat recovery system;

recovering residual heat from said nitrogen gas discharge using a feed water stream which creates a nitrogen gas stream fraction; and

returning said feed water stream to said high pressure combustor.

20. The method of claim 18, wherein said predetermined high pressure combustor operating range is between 800 degrees and 2000 degrees Fahrenheit.

21. The method of claim 18, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

22. The method of claim 21, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

23. The method of claim 18, wherein said predetermined high pressure combustor operating range is between 900 degrees and 1500 degrees Fahrenheit.

24. The method of claim 18, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

25. The method of claim 24, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

26. The method of claim 18, wherein said predetermined high pressure combustor operating range is between 1000 degrees and 1200 degrees Fahrenheit.

27. The method of claim 18, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

28. The method of claim 27, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

29. The method of claim 19, wherein said predetermined high pressure combustor operating range is between 800 degrees and 2000 degrees Fahrenheit.

30. The method of claim 19, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

31. The method of claim 30, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

32. The method of claim 19, wherein said predetermined high pressure combustor operating range is between 900 degrees and 1500 degrees Fahrenheit.

33. The method of claim 19, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

34. The method of claim 33, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

35. The method of claim 19, wherein said predetermined high pressure combustor operating range is between 1000 degrees and 1200 degrees Fahrenheit.

36. The method of claim 19, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

37. The method of claim 36, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.